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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,634	08/21/2003	Michael Stuart Robbins	89205.0011	9781

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EXAMINER	
TRAN, DZUNG D	

ART UNIT	PAPER NUMBER
2638	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/646,634	ROBBINS ET AL.	
	Examiner	Art Unit	
	Dzung D. Tran	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *08/21/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 12-14 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Dworkin (U.S. Patent no. 3,727,061).

Regarding claim 12, Dworkin discloses in figure 2, a communication system, comprising:

a detector 43 (col. 7, line 47) for receiving an optical communication signal (col. 7, lines 45-47);

after conversion of the optical pulses to electrical pulses by the detector 43, the detected pulses is passed through a decision circuit 44 (equivalent to amplifier), which in addition to performing an amplification function (col. 6, lines 54-56, col. 7, lines 56-57);

a filter 41, coupled to the detector 43, for permitting the optical communication signal to substantially pass through the filter while substantially preventing interfering signals from reaching the detector (col. 6, lines 46-50, col. 7, lines 42-49); and

a light emitter 50, coupled to the decision circuit 44 (equivalent to amplifier), for emitting a signal in response to an electrical signal generated by the detector (see figure 2, col. 7, lines 49-55).

Regarding claim 13, Dworkin discloses in figure 2, the detector comprises at least one photodiode detector (col. 2, line 25).

Regarding claim 14, Dworkin discloses in figure 2, a filter is a bandpass filter (col. 6, lines 46-50, col. 7, lines 42-49 discloses filter 41 for permitting the optical communication signal to substantially pass through the filter while substantially preventing interfering signals from reaching the detector).

Regarding claim 17, Dworkin discloses in figure 2, a method for communicating, comprising:

a detector 43 (col. 7, line 47) detecting an electromagnetic communication signal (col. 7, lines 45-47) and converting the electromagnetic communication signal to an electrical signal (col. 7, lines 49-50);

a decision circuit 44 (equivalent to amplifier) amplifying the electrical signal, see col. 6, lines 54-56, col. 7, lines 56-57;

a filter 41 for filtering the electromagnetic communication signal prior to detecting the electromagnetic communication signal;

a light emitter 50 for emitting an electromagnetic signal in response and corresponding to the electrical signal(see figure 2, col. 7, lines 49-55) , wherein a desired optical communication signal is substantially converted to an electrical signal

while interfering signals are substantially prevented from being converted to an electrical signal by the filter 41.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dworkin (U.S. Patent no. 3,727,061) in view of Mc Guire (U.S. Patent no. 6,114,684).

Regarding claim 18, as per claim 17 above, Dworkin discloses all the limitations except for more than one photodetector is used to increase the sensitivity of the receiver to the impinging infrared light. Mc Guire discloses in figure 7, a plurality of photodiode detectors, each detector has a filter 24 for passing light within a predetermined frequency range. At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the plurality photodetector taught by Mc Guire in the optical communication system of Dworkin. One of the ordinary skill in the art would have been motivated to do this in order for the receiving unit to receive a plurality of infrared light having different frequency range. Thus, it increases the sensitivity of the receiver to the impinging infrared light.

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dworkin (U.S. Patent no. 3,727,061) in view of Mc Guire (U.S. Patent no. 6,114,684) and further in view of Hamilton (U.S. Patent no. 6,590,682).

Regarding claim 19, Dworkin and Mc Guire discloses all the limitations except for amplifying the electrical signal is performed using an amplifier with increased sensitivity. Hamilton discloses the amplifier circuit having the Automatic Gain Control loop (AGC loop) feature to adjust the amplifier 29 in response to changes in received signal power (col. 3, lines 42-51). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the amplifier circuit having the Automatic Gain Control loop taught by Hamilton in the optical communication system of Dworkin and Mc Guire. One of the ordinary skill in the art would have been motivated to do this in order to increase or decrease the signal amplification in response to the received signal power so that the signal amplitude will be within some preferred range (col. 3, lines 37-40 of Hamilton).

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dworkin (U.S. Patent no. 3,727,061) in view of Hamilton (U.S. Patent no. 6,590,682).

Regarding claim 4, Dworkin discloses in figure 2, a communication system, comprising:

at least one photodetector 43 (col. 7, line 47) configured to detect impinging light of a desired wavelength (col. 7, lines 45-47);

after conversion of the optical pulses to electrical pulses by the detector 43, the detected pulses is passed through a decision circuit 44 (equivalent to amplifier), which in addition to performing an amplification function (col. 6, lines 54-56, col. 7, lines 56-57);

a bandpass filter 41, coupled to the detector 43, for permitting the optical communication signal to substantially pass through the bandpass filter while substantially preventing interfering signals from reaching the detector (col. 6, lines 46-50, col. 7, lines 42-49); and

at least one light emitter 50, coupled to the decision circuit 44 (equivalent to amplifier), for emitting a signal in response to an electrical signal generated by the detector (see figure 2, col. 7, lines 49-55), wherein the desired impinging light passed through the bandpass filter before impinging on the at least one photodetector 43 and wherein the bandpass filter is configured to pass desired impinging light and block undesired impinging wavelength of light (col. 6, lines 46-50, col. 7, lines 42-49).

Dworkin differs from claim 4 of the present invention in that Dworkin does not specifically disclose the photodetector 43 and light emitter 50 are infrared photodetector and infrared light emitter for transmitting and receiving an infrared light, respectively. Hamilton discloses an infrared signal communication system having infrared photodetector 28 and infrared light emitter 42 for transmitting and receiving an infrared light. At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the infrared photodetector and infrared light emitter taught by Hamilton in the optical communication system of Dworkin. One of the

ordinary skill in the art would have been motivated to do this since the optical infrared system offers an advantages over the land line fiber system that is eliminate the fiber installation between the devices, able to include more devices into the system (e.g., include a TV set or VCR set, etc..) and the freedom of movement of the devices (e.g., a remote control or a TV set or VCR set can be located anywhere within the infrared light range).

7. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dworkin (U.S. Patent no. 3,727,061) in view of Hamilton (U.S. Patent no. 6,590,682) and further in view of Mc Guire (U.S. Patent no. 6,114,684).

Regarding claim 5, as per claim 4 above, the combination of Dworkin and Hamilton discloses all the limitations except for more than one infrared photodetector is used to increase the sensitivity of the receiver to the impinging infrared light. Mc Guire discloses in figure 7, a plurality of photodiode detectors, each detector has a filter 24 for passing light within a predetermined frequency range. At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the plurality photodetector taught by Mc Guire in the optical communication system of Dworkin and Hamilton. One of the ordinary skill in the art would have been motivated to do this in order for the receiving unit to receive a plurality of infrared light having different frequency range. Thus, it increases the sensitivity of the receiver to the impinging infrared light.

Regarding claim 6, Hamilton discloses the amplifier circuit having the Automatic Gain Control loop (AGC loop) feature to adjust the amplifier 29 in response to changes in received signal power (col. 3, lines 42-51). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to replace the amplifier circuit having the Automatic Gain Control loop taught by Hamilton with the amplifier of Dworkin. One of the ordinary skill in the art would have been motivated to do this in order to increase or decrease the signal amplification in response to the received signal power so that the signal amplitude will be within some preferred range (col. 3, lines 37-40 of Hamilton).

8. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dworkin (U.S. Patent no. 3,727,061) in view of Hamilton (U.S. Patent no. 6,590,682) and further in view of Mc Guire (U.S. Patent no. 6,114,684) and further in view of Goto et al. (U.S. Patent no. 6,677,259).

Regarding claims 7-9, the combination of Dworkin, Hamilton and Mc Guire discloses all the limitations except for the bandpass filter passes light falling within a wavelength range of about 920nm to about 980nm and the bandpass filter has an 80 percent bandwidth no less than about 10nm wide and a 50 percent bandwidth no less than about 20nm. Goto discloses a bandpass filter passes light within a wavelength range of about 950nm to about 1600nm (e.g., it covers wavelength range of about 950nm to about 980nm); an 80 percent bandwidth no less than about 10nm wide and a 50 percent bandwidth no less than about 20nm, see abstract and col. 3, line 63 to col. 4,

line 5. At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the bandpass filter taught by Goto in the optical communication system of Dworkin, Hamilton and Mc Guire. One of the ordinary skill in the art would have been motivated to do this in order to provide an optical filter with a very high finesses to filter-out extremely narrow bandwidth wavelengths of lght energy and to reduce sensitivity to external perturbations such as noise to improve the stability of the system. Furthermore, whether or not a bandpass filter having the characteristic of an 80 percent bandwidth no less than about 10nm wide and a 50 percent bandwidth no less than about 20nm is merely an engineering design choices.

Regarding claim 10, Hamilton discloses the amplifier circuit having the Automatic Gain Control loop (AGC loop) feature to adjust the amplifier 29 in response to changes in received signal power (col. 3, lines 42-51). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to replace the amplifier circuit having the Automatic Gain Control loop taught by Hamilton with the amplifier of Dworkin. One of the ordinary skill in the art would have been motivated to do this in order to increase or decrease the signal amplification in response to the received signal power so that the signal amplitude will be within some preferred range (col. 3, lines 37-40 of Hamilton).

9. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dworkin (U.S. Patent no. 3,727,061) in view of Hamilton (U.S. Patent no. 6,590,682) and further in view of Goto et al. (U.S. Patent no. 6,677,259).

Regarding claims 1 and 2, Dworkin discloses in figure 2, a communication system, comprising:

at least one photodetector 43 (col. 7, line 47) configured to detect impinging light of a desired wavelength (col. 7, lines 45-47);

after conversion of the optical pulses to electrical pulses by the detector 43, the detected pulses is passed through a decision circuit 44 (equivalent to amplifier), which in addition to performing an amplification function (col. 6, lines 54-56, col. 7, lines 56-57);

a bandpass filter 41, coupled to the detector 43, for permitting the optical communication signal to substantially pass through the bandpass filter while substantially preventing interfering signals from reaching the detector (col. 6, lines 46-50, col. 7, lines 42-49); and

at least one light emitter 50, coupled to the decision circuit 44 (equivalent to amplifier), for emitting a signal in response to an electrical signal generated by the detector (see figure 2, col. 7, lines 49-55), wherein the desired impinging light passed through the bandpass filter before impinging on the at least one photodetector 43 and wherein the bandpass filter is configured to pass desired impinging light and block undesired impinging wavelength of light (col. 6, lines 46-50, col. 7, lines 42-49).

Dworkin differs from claims 1 and 2 of the present invention in that Dworkin does not specifically disclose the photodetector 43 and light emitter 50 are infrared photodetector and infrared light emitter for transmitting and receiving an infrared light; and a bandpass filter is configured to have a center wavelength falling within a range of

920nm to about 980nm; an 80 percent bandwidth no less than about 10nm wide and a 50 percent bandwidth no less than about 20nm; and 50 percent bandwidth of said bandpass filter encompasses the about 940nm to about 960nm wavelength range.

Hamilton discloses an infrared signal communication system having infrared photodetector 28 and infrared light emitter 42 for transmitting and receiving an infrared light. At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the infrared photodetector and infrared light emitter taught by Hamilton in the optical communication system of Dworkin. One of the ordinary skill in the art would have been motivated to do this since the optical infrared system offers an advantages over the land line fiber system that is eliminate the fiber installation between the devices, able to include more devices into the system (e.g., include a TV set or VCR set, etc..) and the freedom of movement of the devices (e.g., a remote control or a TV set or VCR set can be located anywhere within the infrared light range).

Goto discloses a bandpass filter passes light within a wavelength range of about 950nm to about 1600nm (e.g., it covers wavelength range of about 950nm to about 980nm); an 80 percent bandwidth no less than about 10nm wide and a 50 percent bandwidth no less than about 20nm, see abstract and col. 3, line 63 to col. 4, line 5. At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the bandpass filter taught by Goto in the optical communication system of Dworkin, Hamilton and Mc Guire. One of the ordinary skill in the art would have been motivated to do this in order to provide an optical filter with a

very high finesses to filter-out extremely narrow bandwidth wavelengths of lght energy and to reduce sensitivity to external perturbations such as noise to improve the stability of the system. Furthermore, whether or not a bandpass filter having the characteristic of an 80 percent bandwidth no less than about 10nm wide and a 50 percent bandwidth no less than about 20nm or 50 percent bandwidth of said bandpass filter encompasses the about 940nm to about 960nm wavelength range is merely an engineering design choices.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dworkin (U.S. Patent no. 3,727,061) in view of Hamilton (U.S. Patent no. 6,590,682) and Goto et al. (U.S. Patent no. 6,677,259) and further in view of Solomon (U.S. Patent no. 3,725,888).

Regarding claim 3, the combination of Dworkin, Hamilton and Goto discloses all the limitations except for an amplifier respond to one or more of the following signal frequencies 32KHz, 40KHz and 56KHz. Solomon discloses an amplifier respond to 40KHz frequencies (col. 2, lines 29-31). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the amplifier taught by Solomon in the optical communication system of Dworkin, Hamilton and Goto. One of the ordinary skill in the art would have been motivated to do this in order to boost the signal of the broadband frequencies (i.e., about 30KHz to 70KHz) and to restore the signal to a desired level.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Nyman et al. U.S. Patent no. 6,433,927. Low cost amplifier using bulk optics

b. Isoda U.S. Patent no. 3,928,760. Remote control system

c. Motohashi U.S. Patent no. 6,483,622. Mobile data terminal with an infrared communication capability

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dzung Tran

Dzung Tran
06/10/2005